

Serial No.: 10/767,742
Docket No.: 103-1003
Amendment dated: April 5, 2007
Reply to the Office Action of January 25, 2007

Amendments to the Claims

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of controlling a plurality of automated guided vehicles operated on a single guide path, comprising:

assigning work to another automated guided vehicle waiting for work when there is a conveyance request;

determining whether an automated guided vehicle moving to a working location exists on the guide path;

reading information on respective current and working locations of the automated guided vehicle and the other automated guided vehicle vehicles if the automated guided vehicle moving to the working location exists on the guide path;

determining whether ~~simultaneous movements are possible~~ movement along the guide path by the other automated guided vehicle to perform the work assigned thereto can be conducted concurrently with the movement along the guide path by the automated guided vehicle based on the read information; and

moving the other automated guided vehicle ~~waiting for work~~ along the guide path if the simultaneous movements can be conducted concurrently are possible.

2. (Currently amended) The method as set forth in claim 1, further comprising:

determining whether ~~there is a possibility of~~ the automated guided vehicle and the other automated guided vehicle would interfere ~~vehicles interfering~~ with each other on the single guide path based on the read information; and

determining whether the ~~simultaneous movements~~ can be conducted concurrently are possible according to the respective current locations and working locations of the automated guided vehicle and the other automated guided vehicle vehicles, a distance between the working locations of the automated guided vehicle and the other automated guided vehicle vehicles, and respective moving directions of the automated guided vehicle and the other

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automated guided vehicle vehicles, if the possibility exists.

3. (Currently amended) The method as set forth in claim 2, wherein it is determined that the ~~simultaneous movements are possible~~ can be conducted concurrently if the distance between the working locations of the automated guided ~~vehicle and the other automated guided vehicle vehicles~~ is longer than a predetermined distance, the moving directions of the automated guided ~~vehicle and the other automated guided vehicle vehicles~~ are the same, and the working location of the automated guided vehicle ~~moving to the working location exists~~ lies on a path ~~by of movement of the other automated guided vehicle waiting for work.~~

4. (Currently amended) The method as set forth in claim 2, wherein the automated guided vehicle waiting for work is moved to a predetermined location if it is determined that the ~~simultaneous movements~~ cannot be conducted concurrently ~~are impossible.~~

5. (Currently amended) An automated guided vehicle control system, comprising:
a plurality of automated guided vehicles operated on a single guide path;
a host computer to transmit a conveyance request to move articles from a predetermined loading location to a predetermined unloading location ~~using one of the automated guided vehicles;~~ and
a control unit to assign work to ~~the an~~ automated guided vehicle waiting for work according to the conveyance request from the host computer, to read information on respective current locations and working locations of the automated guided vehicles if the automated guided vehicles are moving to a respective working locations on the single guide path ~~exist~~, to determine ~~that simultaneous if~~ movements by the automated guided vehicle waiting for work may be conducted on the single guide path concurrently with movements along the single guide path by the automated guided vehicles are possible based on the read information, and to move the automated guided vehicle waiting for work along the single guide path to a working location ~~thereof thereon~~ thereon if the simultaneous movements of the automated guided vehicles and the automated guided vehicle waiting for work can be conducted concurrently ~~are possible.~~

6. (Currently amended) The automated guided vehicle control system as set forth

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in claim 5, wherein the control unit determines whether the ~~simultaneous~~ movements are ~~possible~~ can be conducted concurrently based on the read information on the respective current locations and working locations of the automated guided vehicles and the automated guided vehicle waiting for work and respective moving directions of the automated guided vehicles and the automated guided vehicle waiting for work.

7. (Currently amended) The automated guided vehicle control system as set forth in claim 6, wherein the control unit determines that the ~~simultaneous~~ movements ~~are possible~~ can be conducted concurrently if the respective distance between the working locations of the automated guided vehicles and the automated guided vehicle waiting for work is longer than a predetermined distance, the respective moving directions of the automated guided vehicles and the automated guided vehicle waiting for work are the same, and the working location of the automated guided vehicle moving to the working location ~~exists~~ lies on a path of movement of the automated guided vehicle waiting for work.

8. (Currently amended) The automated guided vehicle control system as set forth in claim 6, wherein the control unit moves the automated guided vehicle waiting for work to a location spaced apart by a predetermined distance from the working location thereof if it is determined that the ~~simultaneous~~ movements of the automated guided vehicles and the automated guided vehicle waiting for work cannot be conducted concurrently ~~are impossible~~.

9. (Currently amended) A method of controlling a plurality of automated guided vehicles operated on a single guide path, comprising:

assigning work to an automated guided vehicle waiting for work on the guide path while at least one other automated guided vehicle moving to a working location exists on the guide path; and

moving the automated guided vehicle waiting for work along the guide path to perform the assigned work whenever it is determined that ~~simultaneous~~ movements of both the automated guided vehicle waiting for work and the automated guided vehicle moving to a working location ~~are possible~~ can be conducted concurrently on the guide path without interference between the two automated guided vehicles.

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10. (Currently amended) The method as set forth in claim 9, wherein the determining operation includes reading information on respective current and working locations of the two automated guided vehicles if the automated guided vehicle moving to the working location exists is present on the guide path.

11. (Currently amended) An automated guided vehicle control system, comprising:
a plurality of automated guided vehicles operated on a single guide path;
a host computer to transmit a conveyance request to move articles from a predetermined loading location to a predetermined unloading location on the single guide path ~~using one of the automated guided vehicles~~; and

a control unit to assign work to one of the automated guided vehicles waiting for work according to the conveyance request from the host computer upon a positive determination that an automated guided vehicle is moving on the single guide path and to move the automated guided vehicle waiting for work along the single guide path toward the unloading location ~~to a working location thereof~~ whenever it is determined that ~~simultaneous~~ movements along the single guide path of the automated guided vehicle waiting for work and ~~an~~ the automated guided vehicle already moving ~~to a working location are possible~~ along the single guide path can be conducted concurrently without interference between the two automated guided vehicles.

12. (Currently amended) The automated guided vehicle control system as set forth in claim 11, wherein the control unit determines whether the ~~simultaneous~~ movements ~~are possible~~ can be conducted concurrently based on the respective current locations and working locations of the automated guided vehicles and moving directions of the automated guided vehicles.

13. (Currently amended) The automated guided vehicle control system as set forth in claim 12, wherein the control system determines that the ~~simultaneous~~ movements ~~are possible~~ can be conducted concurrently if the distance between the respective working locations of the two automated guided vehicles is longer than a predetermined distance, the respective moving directions of the two automated guided vehicles are same, and the working

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location of the automated guided vehicle moving to the working location ~~exists~~ lies on a path of movement of the automated guided vehicle waiting for work.

14. (Currently amended) The automated guided vehicle control system as set forth in claim 12, wherein the control unit moves the automated guided vehicle waiting for work to a location spaced apart by a predetermined distance from the working location if it is determined that the ~~simultaneous movements~~ cannot be conducted concurrently ~~are impossible~~.

15. (New) A method of controlling automated guided vehicles comprising:
assigning a work task to an idle automated guided vehicle, the work task to be performed on a single guide path;

determining a presence of a working automated guided vehicle moving on the single guide path to perform another work task; and

receiving respective instructions by the idle automated guided vehicle and the working automated guided vehicle from a central controller upon a positive determination that the working automated guided vehicle is present on the single guide path such that respective movement along the single guide path of the idle automated guided vehicle and the working automated guided vehicle is conducted concurrently to perform the work task and the other work task.